Appendix 1 - Planting rates for seeding and sprigging in Texas, Zone 4A

Name	Variety	Broadcast or drilled seeding rates are pounds pure live seed (PLS) per acre 3/, 5/, 6/	Native (N) or Introduced (I)	Season of growth	Adaptation by Major Land Resource					Seeding Guidance	Soil 9/					Comments 10/
					96A	87A	87B	133B	152B	Seeding Dates 7/, 8/	Coarse	Moderately Coarse	Medium	Moderately Fine	Fine	
PERENNIAL GRASSES 1/, 4/																
Bahiagrass:	Pensacola, Tifton 9	**15.0**	I	W	X	X	X	X	X	10/1 - 6/1		X	X	X	X	Best adapted to the high rainfall areas of East Texas and the Coast Prairie. Adapted to a wide variety of soils with pH of 5.5 - 7.0; not recommended on soils with pH > 7.0, or soils with > 40" of sand at the surface unless in areas of >55" annual rainfall. It performs better than coastal bermudagrass on wet soils, but is not as drought tolerant as coastal.
Seeded Bermudagrass:	common; hulled	**2.3**	I	W	X	X	X	X	X	3/1 - 6/1		X	X	X	X	Best adapted to well and moderately well drained soils, optimum pH 5.5 - 8.0. Not recommended on deep or very deep sands, or areas flooded for long duration. Less drought tolerant than hybrid bermudagrass.
	common; unhulled	**3.0**	I	W	X	X	X	X	X	3/1 - 6/1		X	X	X	X	Same as above
	Giant	**3.0**	I	W	X	X	X	X	X	3/1 - 6/1		X	X	X	X	Adaptation similar to common, wider leaves, slightly higher productivity than common. Stands have tended to thin out over time.
	Guyman	**3.0**								3/1 - 6/1						Soil adaptation similar to common. Cold tolerance similar to Tifton 44.
	Texas Tough	**3.0**	I	W	X	X	X	X	X	3/1 - 6/1		X	X	X	X	Mixture of common hulled, common unhulled, and giant bermudagrass. Adaptation same as common. Most productive seeded variety in 3 year trial at Overton, TX.
	Tierra Verde	**3.0**	I	W	X	X	X	X	X	3/1 - 6/1		X	X	X	X	Similar mixture to Texas Tough. Adaptation same as common. Production slightly less than Texas Tough in Overton variety trials.
Hybrid Bermudagrass: 2/	Alicia	w/ sprigging machine 12 Bu/ac 15 cu.ft. broadcast 24 Bu/ac 32 cu.ft.	I	W	X	X	X	X	X	1/15 - 6/1	X	X	X	X	X	Adaptation similar to coastal, but less winter hardy and recovers slower than coastal after severe winter. Yield is usually less than coastal. Good for erosion control, provides quicker cover than coastal, but forage is usually lower in quality than coastal. Somewhat susceptible to rust.
	Brazos	w/ sprigging machine 12 Bu/ac 15 cu.ft. broadcast 24 Bu/ac 32 cu.ft.	I	W	X	X	X	X	X	1/15 - 6/1			X	X	X	Production is similar to higher than coastal on adapted soils. Cold tolerance similar to coastal. Usually higher digestibility than coastal.
PERENNIAL GRASSES 1/, 4/ Hybrid Bermudagrass: 2/	Coastal	w/ sprigging machine 12 Bu/ac 15 cu.ft. broadcast 24 Bu/ac 32 cu.ft.	I	W	X	X	X	X	X	1/15 - 6/1	X	X	X	X	X	Best adapted to moderately to well drained sandy to loamy soils, but will persist on clayey soils. Moderate cold tolerance.
	Jiggs	w/ sprigging machine 12 Bu/ac 15 cu.ft. broadcast 24 Bu/ac 32 cu.ft.	I	W	X	X	X	X	X	1/15 - 6/1		X	X	X	X	Adapted to a wide range of soils, faster establishment and higher production potential than coastal on most soils, especially clayey soils. Forage quality similar to coastal. Cold tolerance may be less than coastal. Jiggs is susceptible to rust.
	Tifton 44	w/ sprigging machine 12 Bu/ac 15 cu.ft. broadcast 24 Bu/ac 32 cu.ft.	I	W	X	X	X	X	X	1/15 - 6/1	X	X	X	X	X	Soil adaptation and total production similar to coastal, better cold tolerance, earlier spring growth and later fall growth than coastal.
	Tifton 85	w/ sprigging machine 12 Bu/ac 15 cu.ft. broadcast 24 Bu/ac 32 cu.ft.	I	W	X	X	X	X	X	1/15 - 6/1	X	X	X	X	X	Soil adaptation similar to coastal, but less cold tolerant. Higher production potential, and better forage quality than coastal. Performs better than coastal on sandy soils. Earlier spring growth and later fall growth than coastal
Hybrid Bermudagrass Propagated by tops	Alicia, Jiggs, Tifton 85	5 -7 bales	I	W	X	X	X	X	X	5/30 - 6/15	X	X	X	X	X	Mature tops are not usually available until the end of May. They must be planted into moist soils and packed immediately after planting.

Appendix 1 - Planting rates for seeding and sprigging in Texas, Zone 4A

Name	Variety	Broadcast or drilled seeding rates are pounds pure live seed (PLS) per acre 3/, 5/, 6/	Native (N) or Introduced (I)	Season of growth	Adaptation by Major Land Resource 96A	87A	87B	133B	152B	Seeding Guidance Seeding Dates 7/, 8/	Soil 9/ Coarse	Moderately Coarse	Medium	Moderately Fine	Fine	Comments 10/
Bermudagrass	Sod Mulch	260 cubic yd/ac	I	W	X	X	X	X	X	Year round	X	X	X	X	X	Bermudagrass sprigs and stolons scraped up with topsoil and spread and packed to a thickness of 2 inches. Usually used on disturbed sites that would be hard to get seed or sprigs established.
Bluestem: big	Earl, Kaw, local harvest	6.0	N	W	X	X	X	X	X	3/1 - 5/15		X	X	X		Best adapted to deep loamy fertile upland sites receiving at least 25" of rainfall annually.
Bluestem: little	Aldous, Cimarron, Native mix	3.4	N	W	X	X	X			3/1 - 5/15	X	X	X	X	X	Aldous and Cimerron are best adapted to all upland soils in the Claypan and Southern Blackland areas of Texas.
PERENNIAL GRASSES 1/, 4/ Bluestem, yellow:	K.R., T-587	1.2	I	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Best adapted to moderately to well drained loamy to clayey soils with 20 inches or more annual rainfall. O.W. T-587 will freeze out north of the Red River. Optimum pH 5.5 - 7.5. K.R. not recommended in 133B or 152B.
	Medio	1.0	I	W	X					3/1 - 5/15			X	X	X	Same as K.R.
	Plains, WW Spar	1.8	I	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Best adapted to loamy soils in the northern half of Texas in areas that receive 18 or more inches of annual precipitation. Optimum pH 5.5 - 7.5.
	WW B. Dahl	1.2	I	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Range same as WW Spar. Soil adaptation well to moderately well drained sandy loam to clay loam, not adapted to alkaline soils or wet sites. Stays vegetative longer than other O.W. bluestems.
	WW Ironmaster	1.8	I	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Same range as WW Spar, but should only be used on calcareous soils deficient in Fe.
Dallisgrass		3.5	I	W	X	X	X	X	X	3/1 - 4/15			X	X	X	Best adapted to moist fertile loamy to clayey soils, primarily bottomlands in east Texas and Gulf Coast. Ergot can be a problem.
Eastern gamagrass:	Jackson, San Marcos germplasm, Texas Sue	10.0	N	W	X	X	X	X	X	12/1 - 1/15 Not Stratified 3/1 - 5/15 Stratified		X	X	X	X	Adapted to most soils in areas of Texas that receive more than 25 inches of rainfall. Not recommended on deep or very deep sandy soils.
	Local harvest	10.0	N	W	X	X	X	X	X	12/1 - 1/15 Not Stratified 3/1 - 5/15 Stratified		X	X	X	X	Adapted to moist well to moderately well drained loamy to clayey sites throughout Texas except for the South Texas Plains.
Indiangrass: yellow	Lometa	4.5	N	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Adapted to soils from sands to clays in areas of Texas that receive at least 22 inches of annual precipitation. Best adapted to loamy soils.
Johnsongrass		10.0	I	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Adapted to most soils. Best adapted to clay soils.
PERENNIAL GRASSES 1/, 4/ Kleingrass	Selection-75	1.5	I	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Adapted to all areas of Texas, receiving at least 20 inches of rainfall annually. May winter kill in the northern and northwestern counties of the state. Best adapted to loamy to clayey soils in central, eastern, and southeastern Texas. Should not be used as forage for horses, sheep, or goats.
	Verde	1.7	I	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Same as above, but larger seeded.
Lovegrass: weeping	common, Ermelo, Renner	1.5	I	W	X	X		X	X	3/1 - 5/15	X	X				Best adapted to sandy soils in areas of Texas receiving 16 inches or more annual rainfall. Moderate cold tolerance.
Lovegrass: Wilman	common, Palar	1.5	I	W	X	X		X		3/1 - 5/15	X	X	X			Soil adaptation similar to weeping lovegrass. Wilman is less cold tolerant, but more palatable than other lovegrass. Only plant south of Lamar County.
Switchgrass:	Alamo	2.0	N	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Adapted to most soils in areas of Texas receiving at least 25 inches of precipitation annually. Tolerates poor drainage.
	Local harvest	3.5	N	W	X	X	X	X	X	3/1 - 5/15		X	X	X	X	Same as above
Fescue: Tall	Kentucky 31, other adapted endophyte infected varieties	10.0	I	C				X	X	9/1 - 11/30			X	X	X	Best adapted to bottomland soils and marginally adapted clay, clay loam and loamy upland sites in areas of East Texas that receive at least 40 inches of rainfall annually. It should be allowed to reseed every year to help insure persistence. Tolerates low pH and poorly drained soils.

Appendix 1 - Planting rates for seeding and sprigging in Texas, Zone 4A

Name	Variety	Broadcast or drilled seeding rates are pounds pure live seed (PLS) per acre 3/, 5/, 6/	Native (N) or Introduced (I)	Season of growth	Adaptation by Major Land Resource: 96A	87A	87B	133B	152B	Seeding Guidance: Seeding Dates 7/, 8/	Soil 9/: Coarse	Moderately Coarse	Medium	Moderately Fine	Fine	Comments 10/
	AU Triumph, Jesup, and other adapted edophyte free varieies	25.0	I	C			X	X	X	9/1 - 11/30			X	X	X	Same as above. Jesup can tolerate summer heat better than other endophyte free varieties.
Perennial Legumes and Forbs:																
Alfalfa		20.0	I	C	X	X	X	X		8/15 -10/1		X	X	X		Moderately deep to deep, loamy, well drained soils pH 6.5 or greater with good infiltration and water holding capacity.
Engelmanndaisy		15.0	N	C	X	X		X	X	9/15 - 11/30		X	X	X	X	Adapted to loamy to clayey upland soils throughout Texas, except extreme eastern TX.
Illinois bundleflower		1.5	N	W	X	X	X	X	X	3/15 - 5/15		X	X	X	X	Adapted to most upland and bottomland soils in areas receiving at least 15 inches of rainfall annually.
Perennial Legumes and Forbs: Lespedeza	Serecia	2.3	I	W		X	X		X	3/15 - 5/15			X	X	X	Adapted to clay or loam soils. Will grow at pH < 5.0 and where aluminum toxicity is a problem for other plants, but the optimum pH is 5.0 - 6.5.
Maximilian sunflower	Aztec	3.0	N	W	X	X	X	X	X	3/15 - 5/15		X	X	X	X	Adapted to a variety of soils, favors well drianed sunny sites receiving at least 18 inches of rainfall annually
Prairie clover: purple		3.0	N	W	X	X	X			3/15 - 5/15		X	X	X	X	Grows well on high pH Blackland soils. Can cause bloat.
Prairie clover: white		2.0	N	W	X	X	X			3/15 - 5/15			X	X	X	Grows well on high pH Blackland soils. Can cause bloat.
Annual Grasses:																
Crabgrass	Red River	1.0	I	W			X	X		3/15 - 6/15	X	X	X	X	X	Adapted to a wide variety of soils, most productive in areas of high summer rainfall. Forage quality is usually higer than most warm season perennial grasses. Reseeds well
Forage Sorghum: grass types		15.0	I	W	X	X	X	X	X	3/15 - 8/1		X	X	X	X	Adapted to a wide variety of soils, needs pH of 5.5 or greater. Highly productive and responsive to nitrogen. Nitrate or prussic acid poisoning can occur under some circumstances.
Forage Sorghum: others		20.0	I	W	X	X	X	X	X	3/15 - 8/1		X	X	X	X	Same as above
Grain Sorghum		20.0	I	W	X	X	X	X	X	3/15 - 6/15		X	X	X	X	Same as above
Millet: browntop		20.0	I	W	X	X	X	X	X	4/1 - 8/1		X	X	X	X	Adapted to a wide variety of soils, best on well drained loamy, does not do well on calcareous soils. Grows 0.6 - 1.2 meters tall. Acceptable forage for horses.
Millet: foxtail		20.0	I	W	X	X	X	X	X	4/1 - 8/1	X	X	X	X		Adapted to a wide range of soils, best on well drained loamy. Not recommended for horses, can cause kidney and joint problems in horses. Grows 0.3 - 1.75 meters tall.
Millet: Japanese		20.0	I	W	X	X	X	X	X	4/1 - 8/1			X	X	X	Used primarily for wildlife, adapted to wet soils.
Millet: pearl		20.0	I	W	X	X	X	X	X	4/1 - 8/1		X	X	X	X	Good for hay or silage, not as drought tolerant as forage sorghum. Adapted to a wide variety of soils, best on well drained loamy, does not do well on calcareous soils. Grows 2.0 - 3.0 meters tall.
Millet: proso		15.0	I	W	X	X	X	X	X	4/1 - 8/1		X	X	X	X	Used primarily for wildlife food plots. Adapted to a wide range of soils, best on well drained loamy. Matures in about 60 days after emergence.
Annual Grasses: Oat		64.0	I	C	X	X	X	X	X	Prepared seedbed 9/1 -10/15, Overseeded 9/15 - 11/30		X	X	X	X	Early fall grazing, ability to germinate in low moisture. Least cold tolerant, limited winter forage, poor drought tolerance once established. Usually planted in mixture. Adapted to deep loam and sandy loams. Performs better on wet soils than other cereal grains. Optimum pH range 5.0 - 7.5. Does not perform well in very wet or very dry seasons. Usually not planted in NE Texas due to lack of cold tolerance.
Rye		56.0	I	C	X	X	X	X	X	Prepared seedbed 9/1 -10/15, Overseeded 9/15 - 11/30	X	X	X	X		Most drought resistant and cold tolerant of the cool season annuals. Prefers well drained sandy to loamy soils. Optimum pH range 5.0 - 7.5. Early maturity produces the most winter forage.

Appendix 1 - Planting rates for seeding and sprigging in Texas, Zone 4A

Name	Variety	Broadcast or drilled seeding rates are pounds pure live seed (PLS) per acre 3/, 5/, 6/	Native (N) or Introduced (I)	Season of growth	Adaptation by Major Land Resource					Seeding Guidance	Soil 9/					Comments 10/
					96A	87A	87B	133B	152B	Seeding Dates 7/, 8/	Coarse	Moderately Coarse	Medium	Moderately Fine	Fine	
Ryegrass		12.0	I	C	X	X	X	X	X	Prepared seedbed 9/1 -10/15, Overseeded 9/15 - 11/30		X	X	X	X	Best adapted to areas of Texas that receive more than 25 inches of rainfall annually. It is adapted to a wide range of soils, and it is the best cool season annual grass on poorly drained soils. With adequate rainfall it is usually the most productive of the cool season annual grasses, but most of the production will be in the spring. Optimum pH range 5.5 - 8.0.
Triticale		50.0	I	C	X	X	X	X	X	Prepared seedbed 9/1 -10/15, Overseeded 9/15 - 11/30		X	X	X	X	Cross between wheat and rye. Usually yields less than rye, oats, and ryegrass. Optimum pH range 5.0 - 7.5.
Wheat		60.0	I	C	X	X	X	X	X	Prepared seedbed 9/1 -10/15, Overseeded 9/15 -		X	X	X	X	Good cold and drought tolerance. Good fall and winter production. Least productive of the cool season forages. Adapted to a wide range of soils. Optimum pH range 5.5 - 8.0.

Appendix 1 - Planting rates for seeding and sprigging in Texas, Zone 4A

Name	Variety	Broadcast or drilled seeding rates are pounds pure live seed (PLS) per acre 3/, 5/, 6/	Native (N) or Introduced (I)	Season of growth	Adaptation by Major Land Resource: 96A	87A	87B	133B	152B	Seeding Guidance: Seeding Dates 7/, 8/	Soil 9/: Coarse	Moderately Coarse	Medium	Moderately Fine	Fine	Comments 10/
Annual Legumes:																
Alyceclover		3.0	I	W			X	X	X	3/15 - 5/15	X	X	X			Best adapted to Gulf Coast and other areas of high summer rainfall. Well drained sandy soils. Tolerant of low pH. Not competitive with weeds at seedling stage.
Bur medic: clean seed	Armadillo	5.0	I	C	X	X	X	X	X	9/15 - 11/30			X	X	X	Adapted to well drained soils with pH 6.0 or higher. Cold tolerant south of I-20.
Clover: arrowleaf	Meechee, Yuchi, Amclo	10.0	I	C	X	X	X	X	X	9/15 - 11/30		X	X	X		Adapted to sandy to loamy soils with pH 5.5 - 7.0 and good drainage. Late maturity, low bloat potential, good cold tolerance.
Annual Legumes: Clover: ball		3.0	I	C	X	X	X	X	X	9/15 - 11/30		X	X	X	X	Adapted to loamy to clayey soils with pH 5.5 - 8.0 and fair drainage. Late maturity, low bloat potential, good cold tolerance.
Clover: berseem	Bigbee	12.0	I	C	X	X	X	X	X	9/15 - 11/30		X	X	X	X	Adapted to loamy to clayey soils with pH 6.5 - 8.0 and fair/poor drainage. Late maturity, low bloat potential, poor cold tolerance.
Clover: crimson	Dixie, Tibbee, Chief	20.0	I	C	X	X	X	X	X	9/15 - 11/30	X	X	X	X		Adapted to most soils with pH 6.0 - 7.0 good drainage. Early maturity, medium bloat potential, good cold tolerance.
Clover: persian		3.0	I	C			X	X	X	9/15 - 11/30		X	X	X	X	Adapted to bottomland loamy to clayey soils with pH 6.5 - 8.0 and fair/poor drainage. Medium maturity, high bloat potential, fair cold tolerance.
Clover: red	Kenland, Cherokee	10.0	I	C	X	X	X	X	X	9/15 - 11/30		X	X	X	X	Adapted to loamy to clayey soils with pH 6.5 - 8.0 and good drainage. Late maturity, low bloat potential, good cold tolerance. Biennial, usually acts as an annual in east TX.
Clover: rose	Overton R18	10.0	I	C	X	X	X	X	X	9/15 - 11/30		X	X	X	X	Adapted to most soils with pH 5.5 - 8.0 and good drainage. Medium maturity, low bloat potential, good cold tolerance.
Clover: subterranean	Karridale, Denmark	16.0	I	C	X			X	X	9/15 - 11/30			X	X	X	Adapted to loamy to clayey soils with pH 5.5 - 7.3 and fair drainage. Early to late maturity, medium bloat potential, fair cold tolerance.
Clover: white	LA S-1, Regal, Osceola	3.0	I	C	X	X	X	X	X	9/15 - 11/30			X	X	X	Adapted to loamy to clayey soils (usually bottomlands) with pH 5.5 - 7.5 and fair/poor drainage. Late/perennial maturity, medium bloat potential, good cold tolerance.
Cowpea	Iron, Clay	40.0	I	W	X	X	X	X	X	4/1 - 6/15	X	X	X	X	X	Adapted to well drained soils pH range of 5.5 - 7.5. Drought tolerant.
Annual Legumes: Lespedeza: common	Kobe, Korean	25.0	I	W	X	X	X	X	X	3/15 - 4/30	X	X	X	X		Adapted to well drained soils throughout East and southeast Texas. Optimum pH range is 5.0 - 6.5. Tends to be squeezed out by vigorously growing warm season grasses in highly fertilized situations. Korean less tolerant of soil acidity.
Partridge pea	Comanche	13.4	N	W	X	X	X	X	X	3/15 - 6/1	X	X	X			Adapted to sands and sandy loams receiving > 19 inches of annual rainfall.
Soybean:	Tyrone	60.0	I	W	X	X	X	X	X	3/15 - 6/1		X	X	X	X	Adapted to well drained soils, pH range is 5.5 - 8.0. Drought tolerant when used for forage. Hay is difficult to cure, and if grazed no regrowth occurs. Best used for silage.
Singletary pea		35.0	I	C	X	X	X	X	X	9/15 - 11/30			X	X	X	Adapted to loamy to clayey soils with pH 5.5 - 8.0 and fair/poor drainage. Medium maturity, fair cold tolerance. Grazing should be discontinued in late spring to avoid seed toxicity and allow reseeding.
Sweetclover		12.0	I	C	X	X	X	X	X	9/15 - 11/30 3/15 - 4/1			X	X	X	Both white and yellow sweet clovers are biennial. Adapted to well drained clay to clay loam, optimum pH range 6.5 - 7.5. The use of low coumarin varieties is recommended to reduce problems associated with this plant.
Vetch: hairy		15.0	I	C	X	X	X	X	X	9/1 - 10/15	X	X	X	X	X	Adapted to well drained soils with pH 5.0 - 8.0. Late maturity, low bloat potential, good cold tolerance. Cattle develop muscular problem when grazing vetch, especially when seed are forming.
Winterpea: Austrian		35.0	I	C	X	X	X	X	X	9/1 - 10/15		X	X			Adapted to loam to sandy loam soils with pH 6.0 - 8.0 and good drainage. Medium maturity, fair/good cold tolerance. Best used w/small grain for silage, does not tolerate grazing very well.

Appendix 1 - Planting rates for seeding and sprigging in Texas, Zone 4A														
					Adaptation by Major Land Resource				Seeding Guidance	Soil 9/				
Name	Variety	Broadcast or drilled seeding rates are pounds pure live seed (PLS) per acre 3/, 5/, 6/	Native (N) or Introduced (I)	Season of growth	96A	87A	87B	133B	152B	Seeding Dates 7/, 8/	Coarse	Moderately Coarse	Medium	Moderately Fine	Fine	**Comments 10/**

TABLE 4A - FOOTNOTES:

1/ Species are listed by common name and where applicable by released cultivar or variety. Planting rates are shown as by PLS.

2/ Conversion factors: 3.5 bushels of tops = 1 bale; 7 bushels of sprigs = 1 bale; 1.25 cubic feet = 1 bushel; 1 bushel sprigs = about 15 pounds .

3/ PLS = Pure Live Seed. To compute PLS from seed analysis information: Percent PLS = (% germination + % hard [dormant] seed) X % pure seed. Seeding rate in PLS pounds divided by % PLS will give you the bulk seeding rate needed to get the right amount of pure live seed.

4/ Local harvest may be used when seeding species of unknown or common variety, or natural stands. Local harvested seed should have its geographic origin within 200 miles north, 300 miles south, 100 miles east and 200 miles west of the site where it will be planted. It is also desirable that locally harvested seed be used on soils of the same texture as soils where seed was harvested.

5/ The TZ (tetrazolium salt) test can be used for the germination factor in figuring PLS if the dealer furnishes the seed tag or other proof the test was run by a reputable seed lab.

6/ Seeding rates for row planting (spacing 21 - 40 inch) of any of the species in the Table will be determined by using 1/3 of the broadcast or drilled rate (spacing 20 inch or less).

7/ See attached maps for average (70% chance) last freeze and first freeze dates for each Resource Team. Field office personnel should use these dates as a guide, and not initiate planting of warm season species earlier than 2 weeks before the spring date, unless otherwise noted in the Table. Seeding dates for warm season species will not be extended to less than 6 weeks before the fall date, unless otherwise noted in the Table. Local Field Office personnel may approve planting up to 2 weeks before or after the dates in the Table if local site conditions are suitable for planting, germination, and establishment of the selected species. Any further variance outside the dates in the Table must be approved in writing from the Zone Office.

8/ The optimum planting depth for sprigs & tops is 1.0 to 3.0 inches, small seeded (>35000 seed per pound) species is 1/8 to 1/4 inch, large seeded species 3/4 to 1.0 inches unless it is otherwise noted for the individual specie.

9/ Soil groups are based on the following textures: Coarse - Coarse sand, Sand, Fine sand, Very fine sand, Loamy coarse sand, Loamy sand, Loamy fine sand and Loamy very fine sand; Moderately Coarse - Sandy loam, Coarse sandy loam and fine sandy loam; Medium - Very fine sandy loam, Loam, Silt loam and silt; Moderately Fine - Clay loam, Sandy clay loam and Silty clay loam; Fine - Sandy clay, silty clay and clay.

10/ Additional information on adaptation is available in species specific NRCS Job Sheets, Texas Agricultural Extension Service publications, Texas Agricultural Experiment Station publications, and from the references listed on the reference sheet.

Appendix 1 - Planting rates for seeding and sprigging in Texas, Zone 4A

Name	Variety	Broadcast or drilled seeding rates are pounds pure live seed (PLS) per acre 3/, 5/, 6/	Native (N) or Introduced (I)	Season of growth	Adaptation by Major Land Resource: 96A	87A	87B	133B	152B	Seeding Guidance: Seeding Dates 7/, 8/	Soil 9/: Coarse	Moderately Coarse	Medium	Moderately Fine	Fine	Comments 10/

County	Last Spring Freeze Date	First Fall Freeze Date
Delta Lamar Red River	2/28	12/2
Hopkins Rains Wood	3/1	11/27
Bowie Cass Marion	3/3	11/24
Camp Franklin Gregg Morris Titus Upshur	3/8	11/24
Henderson Van Zandt	2/28	11/30
Harrison Panola	2/27	11/30
Anderson Freestone	2/26	12/6
Cherokee Smith Rusk	2/23	12/2
Nacogdoches Sabine San Augustine Shelby	2/27	11/27
Angelina Houston Polk San Jacinto Trinity	2/25	12/3
Jasper Newton Tyler	3/4	11/22

Spring last freeze dates, most restrictive date within the team for 70% occurrence of 28 degrees F.
Based on NRCS county weather data

Fall first freeze dates, most restrictive date within the team for 70% occurrence of 28 degrees F.
Based on NRCS county weather data